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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,550	04/06/2001	Michael W. Halpin	ASMEX.271A	4978

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

10

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/828,550

Applicant(s)

HALPIN, MICHAEL W.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10,13,14,46-48 and 55-65 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

- 6) ☒ Claim(s) 1-10,13,14,46-48 and 55-65 is/are rejected.

- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☒ The drawing(s) filed on 06 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All   b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.

4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-3, 9, and 46 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnsgard et al (USPat. 6,342,691). Johnsgard teaches a semiconductor (106; Figure 1; column 14, lines 20-35) processing apparatus (Figure 1; column 14, lines 20-35) comprising:
  - i. a reaction chamber (100; Figure 1; column 14, lines 20-35) and plural vitreous quartz components (130C, 130G; column 16, lines 54-60) that have a support surface (130C/130A and 130G/130B interface) for supporting other components (130A, 130B) in the reaction chamber, the support surface being covered at least in part by a devitrification barrier coating made of silicon nitride (column 17, lines 23-30) that is bonded (inherent) to the support surface and directly contacts the supported other components (see Figure 1)
  - ii. the devitrification barrier coating covers at least a portion of a quartz sheath (130D, E, H; Figure 6; column 16, lines 52-65) of a thermocouple (610; Figure 6; column 16, lines 8-25)
3. Claims 1-4, 9, 10, 13, 14, and 47 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Wengert (USPat. 6,325,858). Wengert teaches identical component parts (Figure 1) including vitreous quartz components (column 7, lines 19-22) and coated over with silicon nitride devitreous “shields” (column 7, lines 19-30). Inclusive, Wengert teaches a reaction chamber (10; Figure 1) and plural vitreous quartz components (23, 24, 38; column 7, lines 19-30) that have a support surface (upper surface of 24) for supporting other components (20, 22; Figure 1) in the reaction chamber, the support surface being covered at least in part by a devitrification

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barrier coating made of silicon nitride (column 7, lines 22-33) that is bonded (inherent) to the support surface and directly contacts the supported other components (see Figure 1)

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 4, 13, 14, 47, 55-62, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnsgard et al (USPat. 6,342,691) in view of Shih et al (USPat. 6,120,640). Johnsgard is discussed above. Johnsgard further teaches the apparatus further comprises an upwardly extending projection (110; Figure 1; column 14, lines 35-40) positioned on a support device (116), the projection and support device configured to support a substrate (106) within the apparatus (100).

Johnsgard does not teach the manner in which the devitrification barrier is coated by CVD. Johnsgard does not teach the thickness of the devitrification barrier or that the devitrification barrier covers only a portion of the vitreous components. Johnsgard does not teach that the projection being covered at least in part by the devitrification barrier coating.

Shih teaches protective barrier films for plasma facing components of reactor parts (column 5, lines 14-43). Specifically, Shih teaches the manner in which a silicon nitride (column 10, lines 50-55) devitrification barrier is coated by CVD. Shih teaches that the projection being covered at least in part by the devitrification barrier coating (column 5, lines 14-22).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made for Johnsgard to deposit his silicon nitride devitrification barrier coating by CVD over portions of his quartz vitrification parts as taught by Shih.

Motivation for Johnsgard to deposit his silicon nitride devitrification barrier coating by CVD over portions of his quartz vitrification parts as taught by Shih is drawn to an alternate and equivalent means for coating Johnsgard's silicon nitride devitrification barrier.

6. Claims 5-8, 48, 63, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnsgard et al (USPat. 6,342,691) in view of Atsushi Koike (USPat. 5,065,698). Johnsgard is discussed above. Johnsgard does not teach the thickness of the devitrification barrier and that the devitrification barrier is deposited by sputtering. Atsushi Koike teaches a film forming apparatus (301; Figure 3) for sputter depositing silicon nitride (column 8, lines 10-20) to a thickness of 800 angstrom (column 10, lines 20-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Johnsgard to deposit his silicon nitride devitrification barrier coating to a thickness of 800 angstrom by sputter coating his quartz vitrification parts as taught by Atsushi Koike.

Motivation for Johnsgard to deposit his silicon nitride devitrification barrier coating to a thickness of 800 angstrom by sputter coating his quartz vitrification parts as taught by Atsushi Koike is drawn to an alternate and equivalent means for coating Johnsgard's silicon nitride devitrification barrier.

7. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being obvious over Wengert et al (USPat. 6,325,858).

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The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Wengert is discussed above. Wengert does not teach the thickness of the devitrification barrier.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Wengert to deposit the devitrification barrier to within the range of the claimed thickness.

Motivation for Wengert to deposit the devitrification barrier to within the range of the claimed thickness is drawn to establishing the optimal thickness for the silicon nitride devitrification barrier. Further, it would be obvious to those of ordinary skill in the art to optimize the thickness of the silicon nitride devitrification barrier. (In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA

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1980); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969); *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re Kulling*, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990), MPEP 2144.05).

8. Claims 46 and 48 are rejected under 35 U.S.C. 103(a) as being obvious over Wengert et al (USPat. 6,325,858) in view of Atsushi Koike (USPat. 5,065,698).

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Wengert is discussed above. Wengert does not teach the thickness of the devitrification barrier and that the devitrification barrier is deposited by sputtering. Atsushi Koike teaches a film

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forming apparatus (301; Figure 3) for sputter depositing silicon nitride (column 8, lines 10-20) to a thickness of 800 angstrom (column 10, lines 20-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Wengert to deposit his silicon nitride devitrification barrier coating to a thickness of 800 angstrom by sputter coating his quartz vitrification parts as taught by Atsushi Koike.

Motivation for Wengert to deposit his silicon nitride devitrification barrier coating to a thickness of 800 angstrom by sputter coating his quartz vitrification parts as taught by Atsushi Koike is drawn to an alternate and equivalent means for coating Johnsgard's silicon nitride devitrification barrier.

#### ***Response to Arguments***

9. Applicant's arguments, see Page 5, filed May 16, 2003, with respect to Claim 9 and 13 rejections under 35 U.S.C. 112 1<sup>st</sup> and 2<sup>nd</sup> paragraphs and the claim 12 objection have been fully considered and are persuasive. The rejections under 35 U.S.C. 112 1<sup>st</sup> and 2<sup>nd</sup> paragraphs of claim 9 and 13 and the claim 12 objection is withdrawn.

10. Applicant's statement that "Johnsgard teaches away from using a "devitrification barrier coating that is bonded to [a] support surface" because Johnsgard states that coating insulation walls with a reflective material such as silicon nitride produces a less durable alternative that "often flake and spall, and may interfere with the chemistry of some processes" is a misinterpretation of Johnsgard's teaching in column 17, lines 28-31. Johnsgard's teaching in column 17, lines 28-31 reflects Johnsgard's preference to "glazed opaque quartz" over that of "clear quartz" and then does not make reference to coating of the reflective material as Applicant contends.

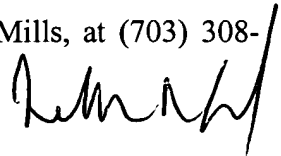
***Conclusion***

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.



JEFFRIE R. LUNT  
PRIMARY EXAMINER